Fig. 1

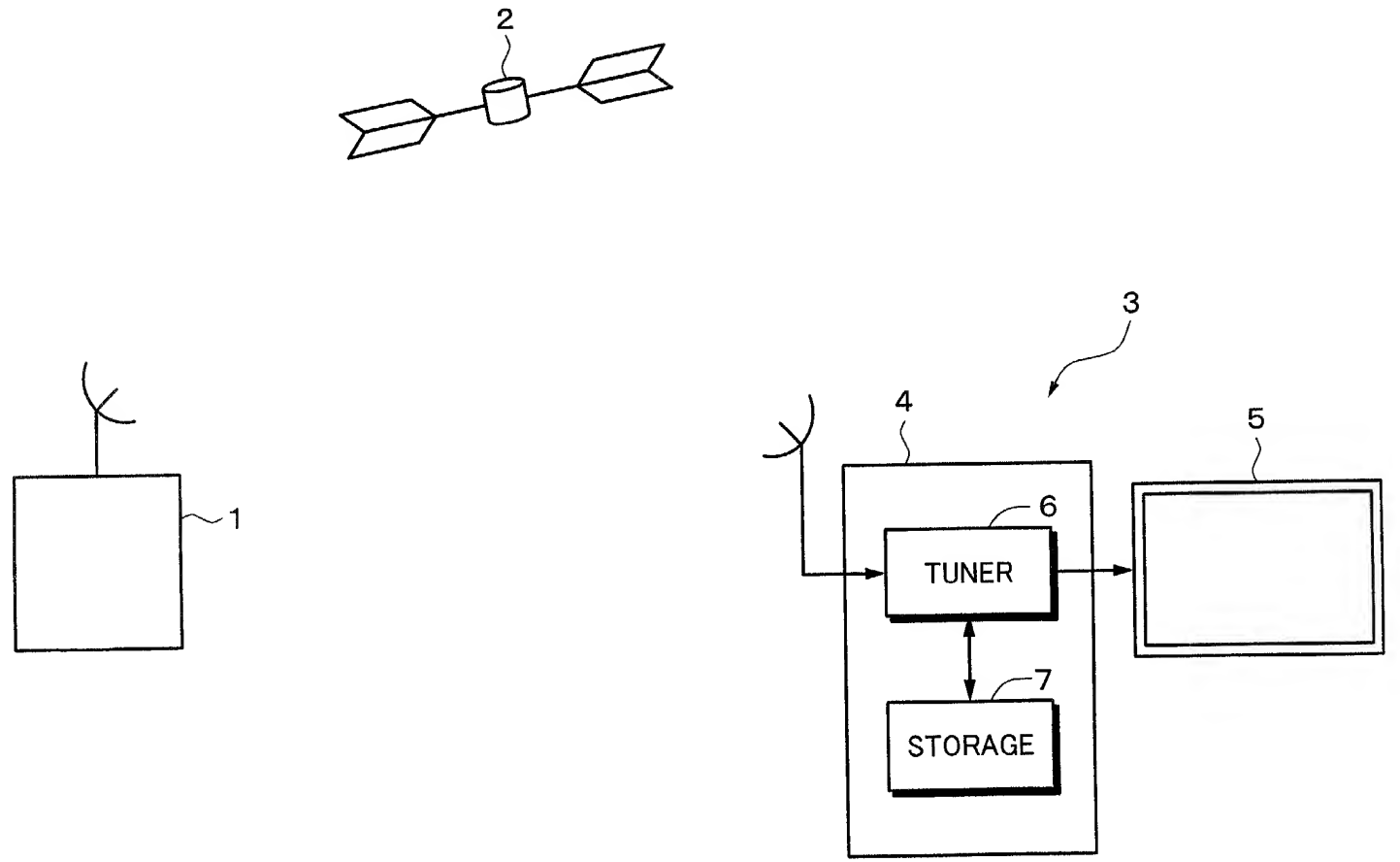


Fig. 2

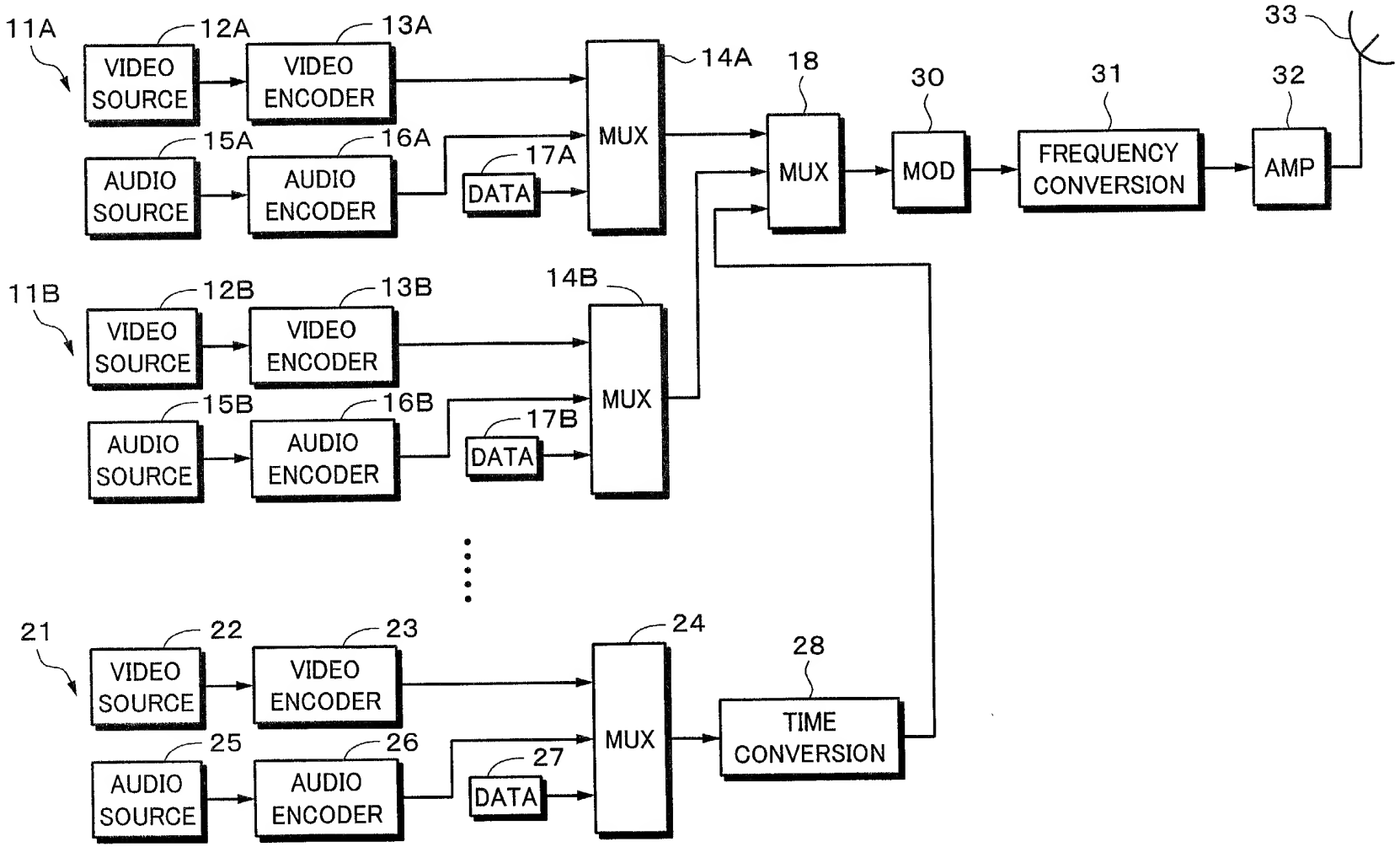

11A
12A
VIDEO SOURCE
VIDEO ENCODER
13A
15A
AUDIO SOURCE
AUDIO ENCODER
16A
17A
DATA
MUX
14A
18
MUX
30
MOD
31
FREQUENCY CONVERSION
32
AMP
33
11B
12B
VIDEO SOURCE
VIDEO ENCODER
13B
14B
15B
AUDIO SOURCE
AUDIO ENCODER
16B
17B
DATA
MUX
21
22
VIDEO SOURCE
VIDEO ENCODER
23
24
25
AUDIO SOURCE
AUDIO ENCODER
26
27
DATA
MUX
28
TIME CONVERSION

Fig. 3

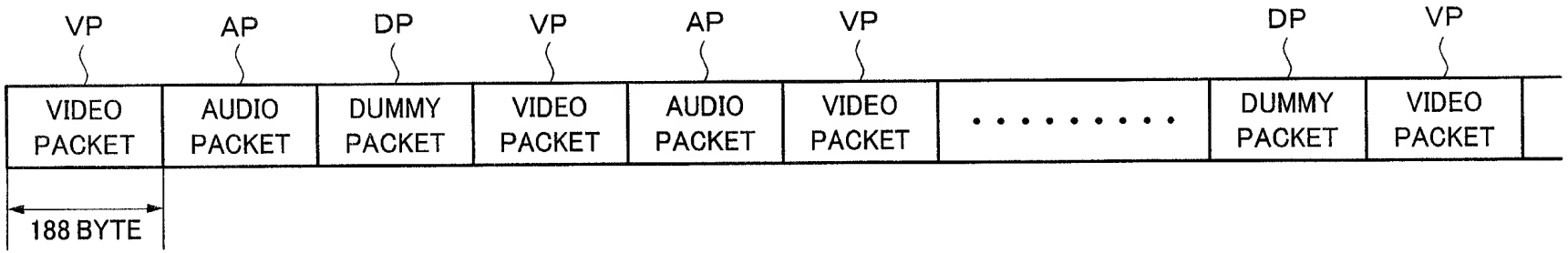


Fig. 4

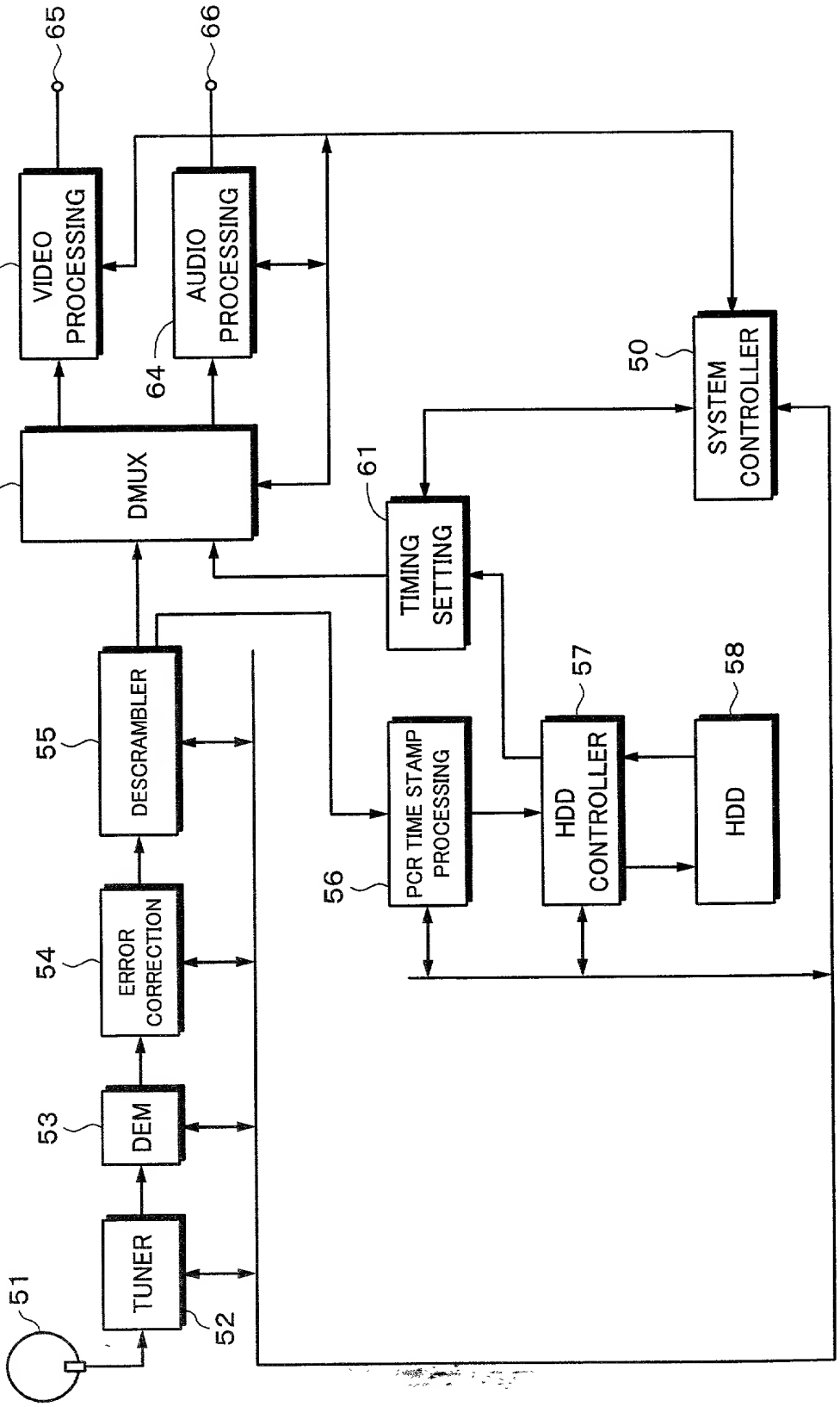


Fig. 5

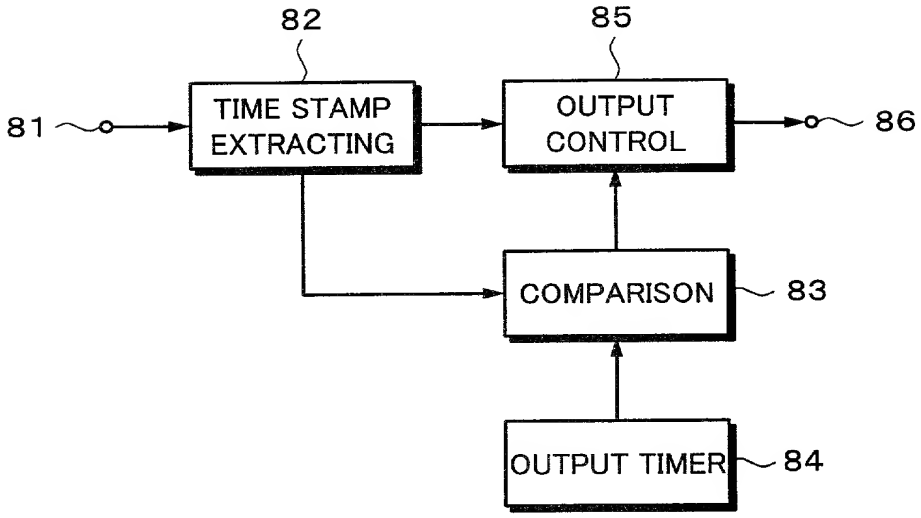

82
85
81
TIME STAMP EXTRACTING
OUTPUT CONTROL
86
COMPARISON
83
OUTPUT TIMER
84

Fig. 6

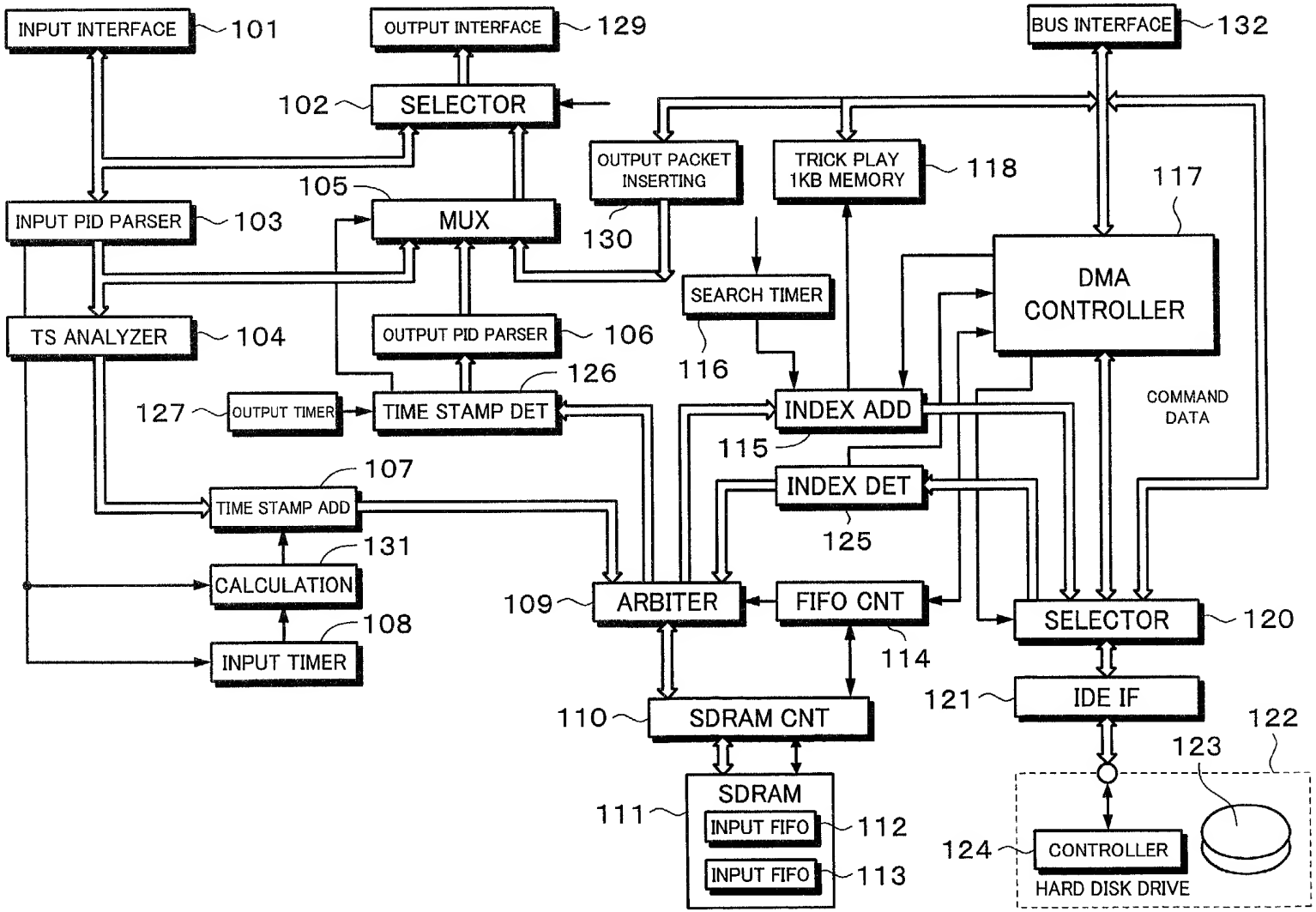


Fig. 7A

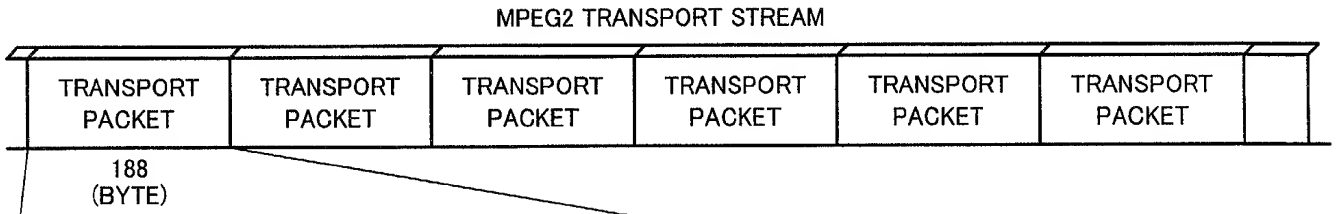


Fig. 7B

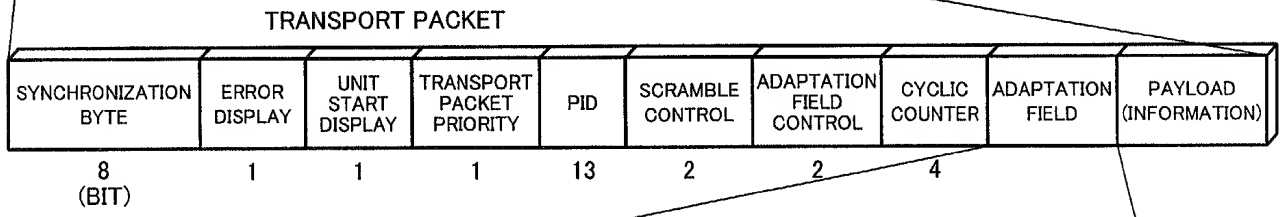


Fig. 7C

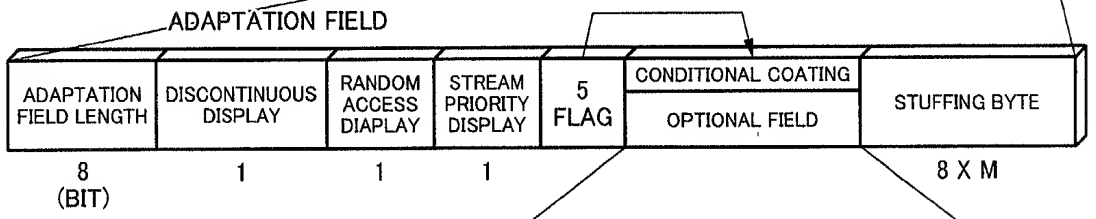


Fig. 7D

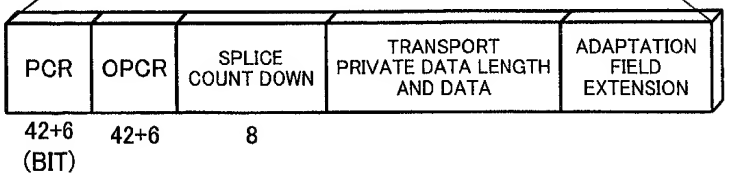


Fig. 8

	value	No. of Bits
adaptation_field(){		
adaptation_field_length=	183	8
flags :		
discontinuity_indicator=	0	1
random_access_indicator=	0	1
elementary_stream_priority_indicator=	0	1
PCR_flag=	1	1
OPCR_flag=	0	1
splicing_point_flag=	0	1
transport_private_data_flag=	0	1
adaptation_field_extension_flag=	0	1
PCR :		
program_clock_reference_base=	x	33
reserved=	0	6
program_clock_reference_extension=	0	9
stuffing :		
for(i=0; i<n; i++){		
stuffing_Byte	0	8
}		

Fig. 9

	value	No. of Bits
adaptation_field(){		
adaptation_field_length=	183	8
flags :		
discontinuity_indicator=	0	1
random_access_indicator=	0	1
elemtary_stream_priority_indicator=	0	1
PCR_flag=	0	1
OPCR_flag=	0	1
splicing_point_flag=	0	1
transport_private_data_flag=	1	1
adaptation_field_extension_flag=	0	1
transport_private_data :		
transport_private_data_length=	7	8
Dummy PCR:		
dummy_program_clock_reference_base=	x	33
dummy_reserved=	0	6
dummy_program_clock_reference_extension=	0	9
Dummy Ratio :		
output_ratio_int=	x	5
output_ratio_decimal=	x	12
output_ratio_reserved=	0	7
stuffing :		
for(i=0; i<n; i++){		
stuffing_Byte	0	8
}		

Fig. 10

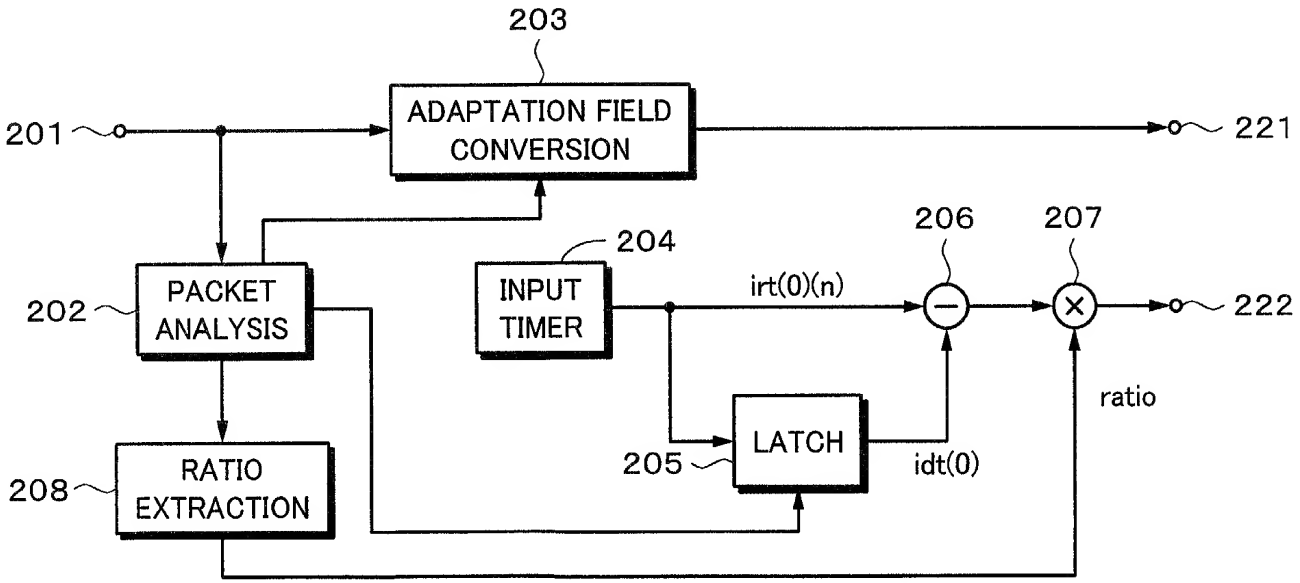

203
ADAPTATION FIELD CONVERSION
201
221
206
207
204
PACKET ANALYSIS
202
INPUT TIMER
irt(0)(n)
222
ratio
LATCH
205
idt(0)
RATIO EXTRACTION
208

Fig. 11

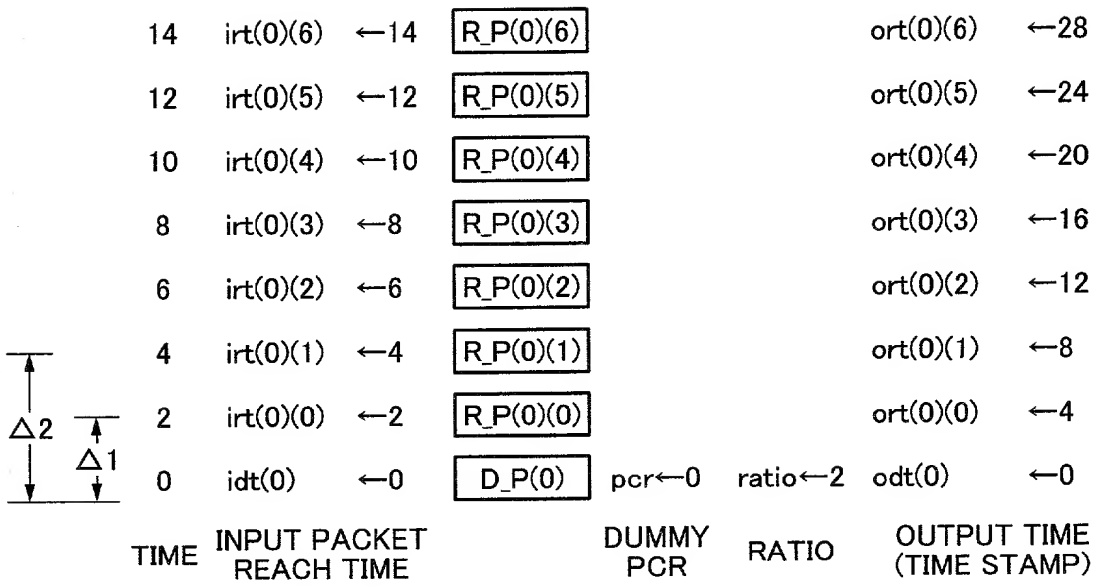

14 irt(0)(6) ←14 R_P(0)(6) ort(0)(6) ←28
12 irt(0)(5) ←12 R_P(0)(5) ort(0)(5) ←24
10 irt(0)(4) ←10 R_P(0)(4) ort(0)(4) ←20
8 irt(0)(3) ←8 R_P(0)(3) ort(0)(3) ←16
6 irt(0)(2) ←6 R_P(0)(2) ort(0)(2) ←12
4 irt(0)(1) ←4 R_P(0)(1) ort(0)(1) ←8
2 irt(0)(0) ←2 R_P(0)(0) ort(0)(0) ←4
0 idt(0) ←0 D_P(0) pcr←0 ratio←2 odt(0) ←0
Δ2
Δ1
TIME
INPUT PACKET REACH TIME
DUMMY PCR
RATIO
OUTPUT TIME (TIME STAMP)

Fig. 12

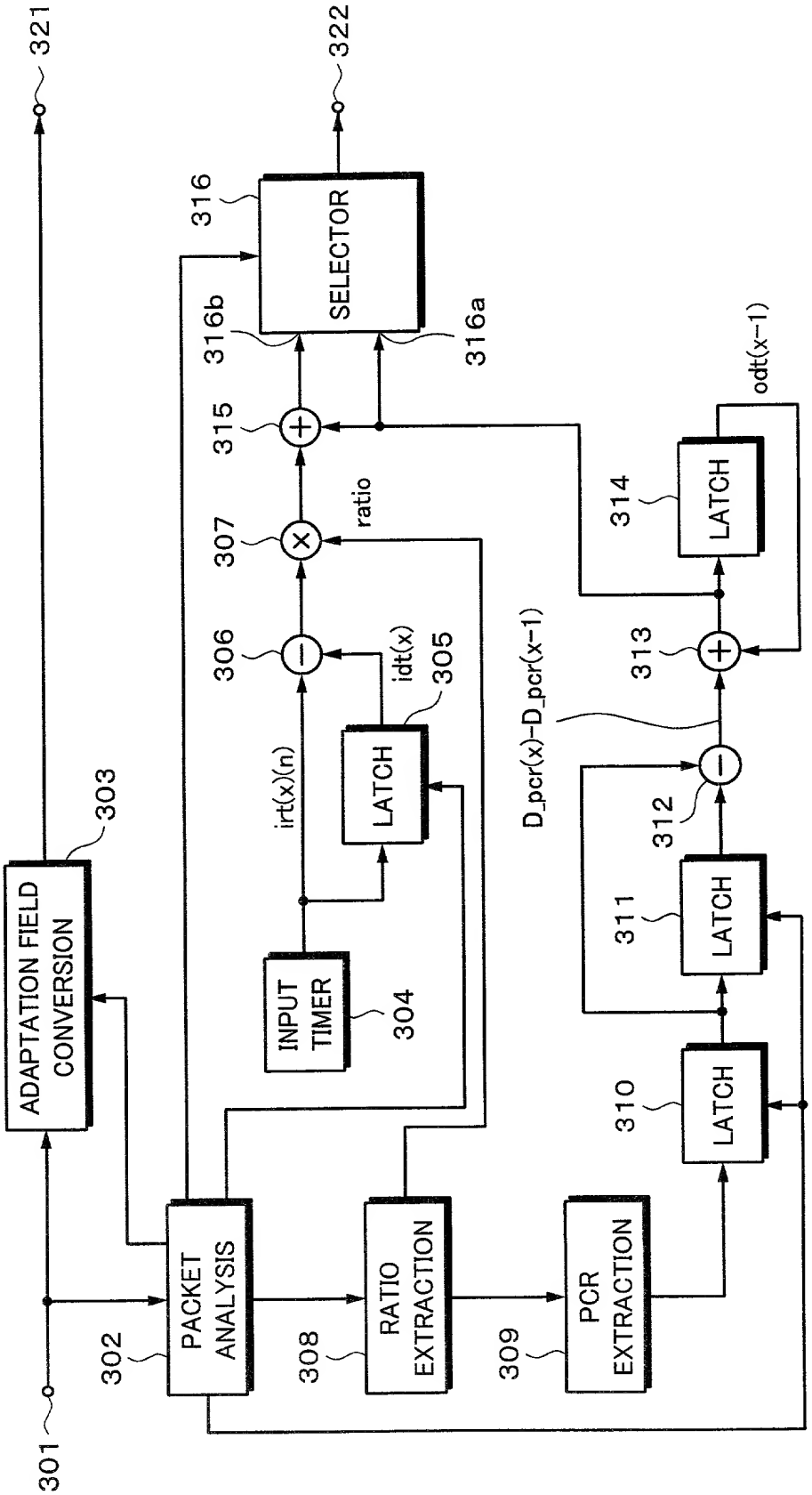

301
302
PACKET ANALYSIS
303
ADAPTATION FIELD CONVERSION
304
INPUT TIMER
305
LATCH
306
307
308
RATIO EXTRACTION
309
PCR EXTRACTION
310
LATCH
311
LATCH
312
313
LATCH
314
315
316
SELECTOR
316a
316b
321
322
irt(x)(n)
idt(x)
ratio
D_pcr(x)-D_pcr(x-1)
odt(x-1)

Fig. 13

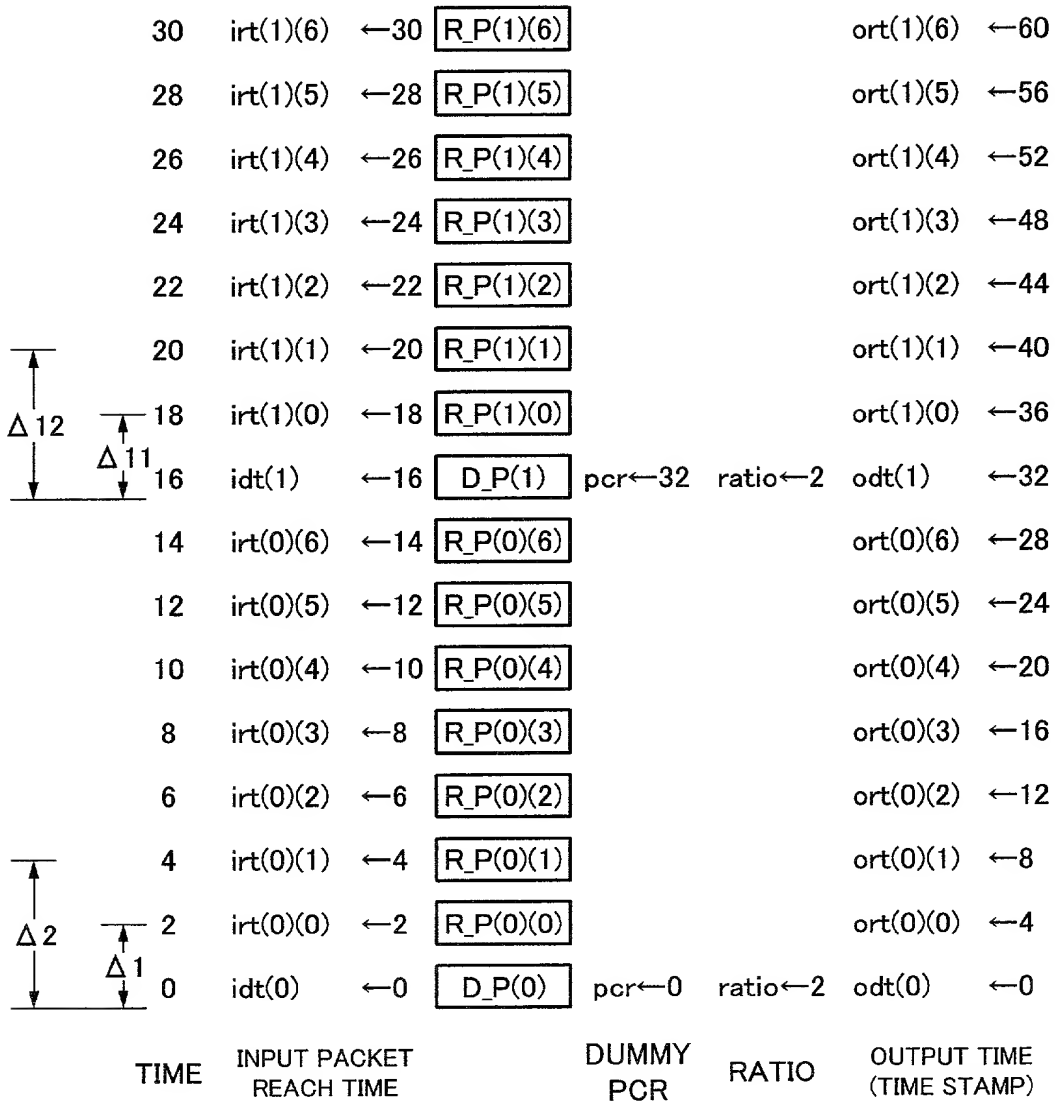

30 irt(1)(6) ←30 R_P(1)(6) ort(1)(6) ←60
28 irt(1)(5) ←28 R_P(1)(5) ort(1)(5) ←56
26 irt(1)(4) ←26 R_P(1)(4) ort(1)(4) ←52
24 irt(1)(3) ←24 R_P(1)(3) ort(1)(3) ←48
22 irt(1)(2) ←22 R_P(1)(2) ort(1)(2) ←44
20 irt(1)(1) ←20 R_P(1)(1) ort(1)(1) ←40
18 irt(1)(0) ←18 R_P(1)(0) ort(1)(0) ←36
16 idt(1) ←16 D_P(1) pcr←32 ratio←2 odt(1) ←32
14 irt(0)(6) ←14 R_P(0)(6) ort(0)(6) ←28
12 irt(0)(5) ←12 R_P(0)(5) ort(0)(5) ←24
10 irt(0)(4) ←10 R_P(0)(4) ort(0)(4) ←20
8 irt(0)(3) ←8 R_P(0)(3) ort(0)(3) ←16
6 irt(0)(2) ←6 R_P(0)(2) ort(0)(2) ←12
4 irt(0)(1) ←4 R_P(0)(1) ort(0)(1) ←8
2 irt(0)(0) ←2 R_P(0)(0) ort(0)(0) ←4
0 idt(0) ←0 D_P(0) pcr←0 ratio←2 odt(0) ←0
Δ12
Δ11
Δ2
Δ1
TIME
INPUT PACKET REACH TIME
DUMMY PCR
RATIO
OUTPUT TIME (TIME STAMP)

Fig. 14

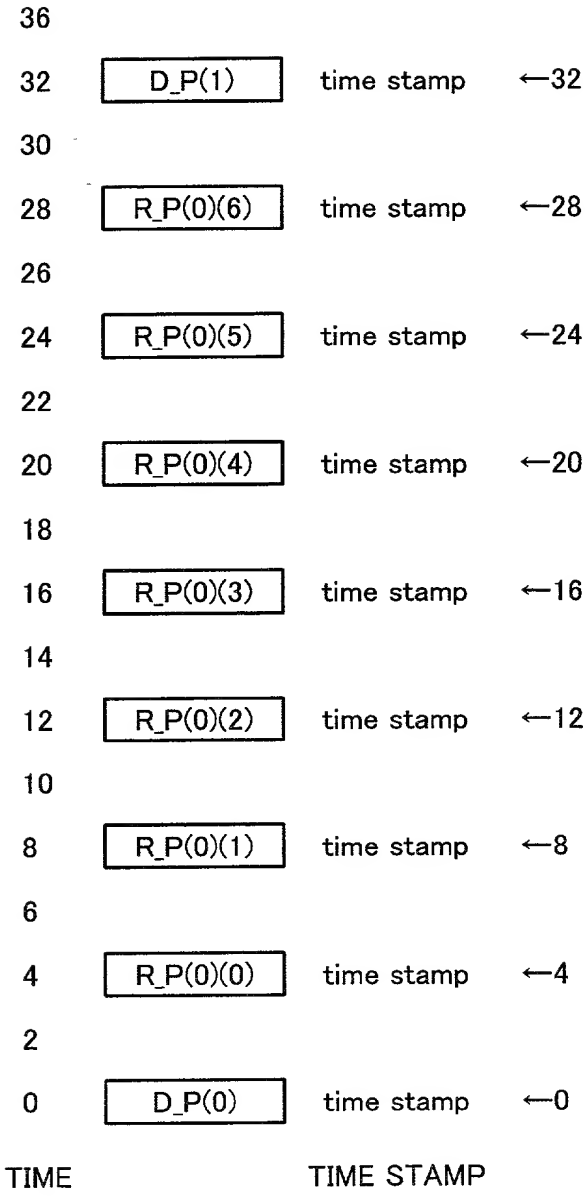

36
32
D_P(1)
time stamp
←32
30
28
R_P(0)(6)
time stamp
←28
26
24
R_P(0)(5)
time stamp
←24
22
20
R_P(0)(4)
time stamp
←20
18
16
R_P(0)(3)
time stamp
←16
14
12
R_P(0)(2)
time stamp
←12
10
8
R_P(0)(1)
time stamp
←8
6
4
R_P(0)(0)
time stamp
←4
2
0
D_P(0)
time stamp
←0
TIME
TIME STAMP

Fig. 15

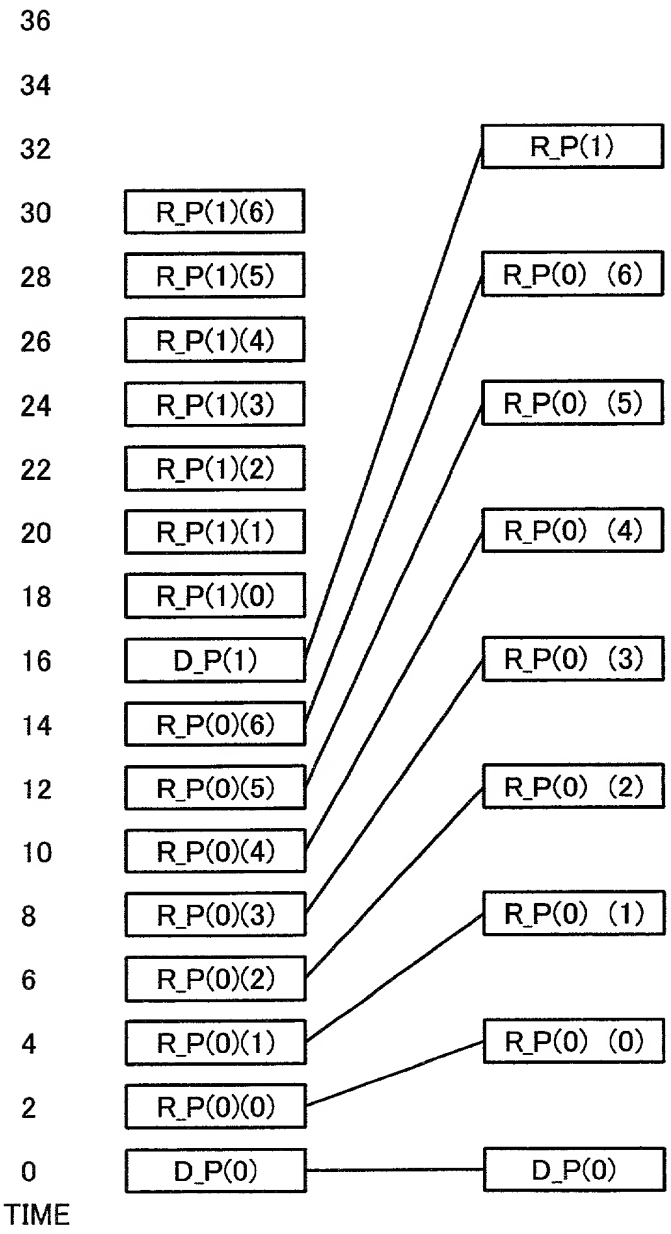

36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
TIME
R_P(1)(6)
R_P(1)(5)
R_P(1)(4)
R_P(1)(3)
R_P(1)(2)
R_P(1)(1)
R_P(1)(0)
D_P(1)
R_P(0)(6)
R_P(0)(5)
R_P(0)(4)
R_P(0)(3)
R_P(0)(2)
R_P(0)(1)
R_P(0)(0)
D_P(0)
R_P(1)
R_P(0) (6)
R_P(0) (5)
R_P(0) (4)
R_P(0) (3)
R_P(0) (2)
R_P(0) (1)
R_P(0) (0)
D_P(0)

Fig. 16

TIME	INPUT PACKET REACH TIME			DUMMY PCR	RATIO	OUTPUT TIME (TIME STAMP)	
18	irt(1)(2)	←18	R_P(1)(2)			ort(1)(2)	←9
17							
16	irt(1)(1)	←16	R_P(1)(1)			ort(1)(1)	←8
15							
14	irt(1)(0)	←14	R_P(1)(0)			ort(1)(0)	←7
13							
12	idt1	←12	D_P(1)	pcr←6	ratio←$\frac{1}{2}$	odt(1)	←6
11							
10	irt(0)(4)	←10	R_P(0)(4)			ort(0)(4)	←5
9							
8	irt(0)(3)	←8	R_P(0)(3)			ort(0)(3)	←4
7							
6	irt(0)(2)	←6	R_P(0)(2)			ort(0)(2)	←3
5							
4	irt(0)(1)	←4	R_P(0)(1)			ort(0)(1)	←2
3							
2	irt(0)(0)	←2	R_P(0)(0)			ort(0)(0)	←1
1							
0	idt0	←0	D_P(0)	pcr←0	ratio←$\frac{1}{2}$	odt(0)	←0

Fig. 17

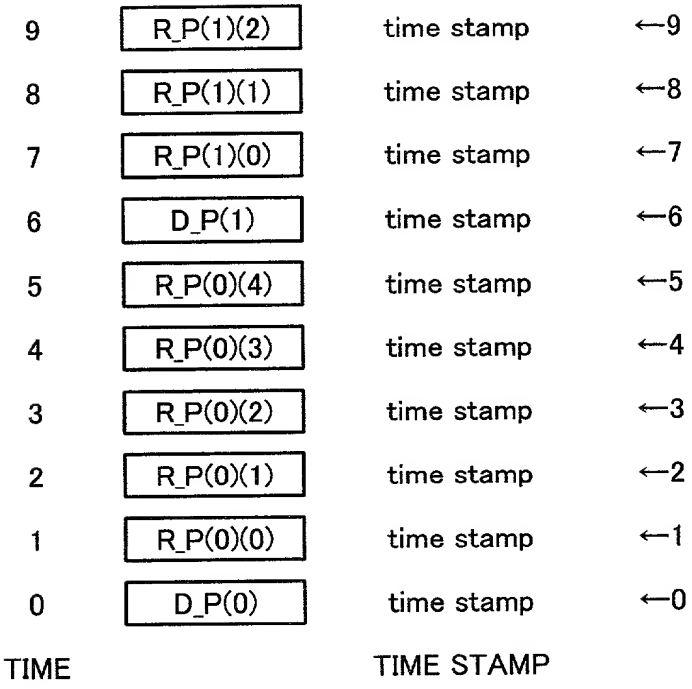
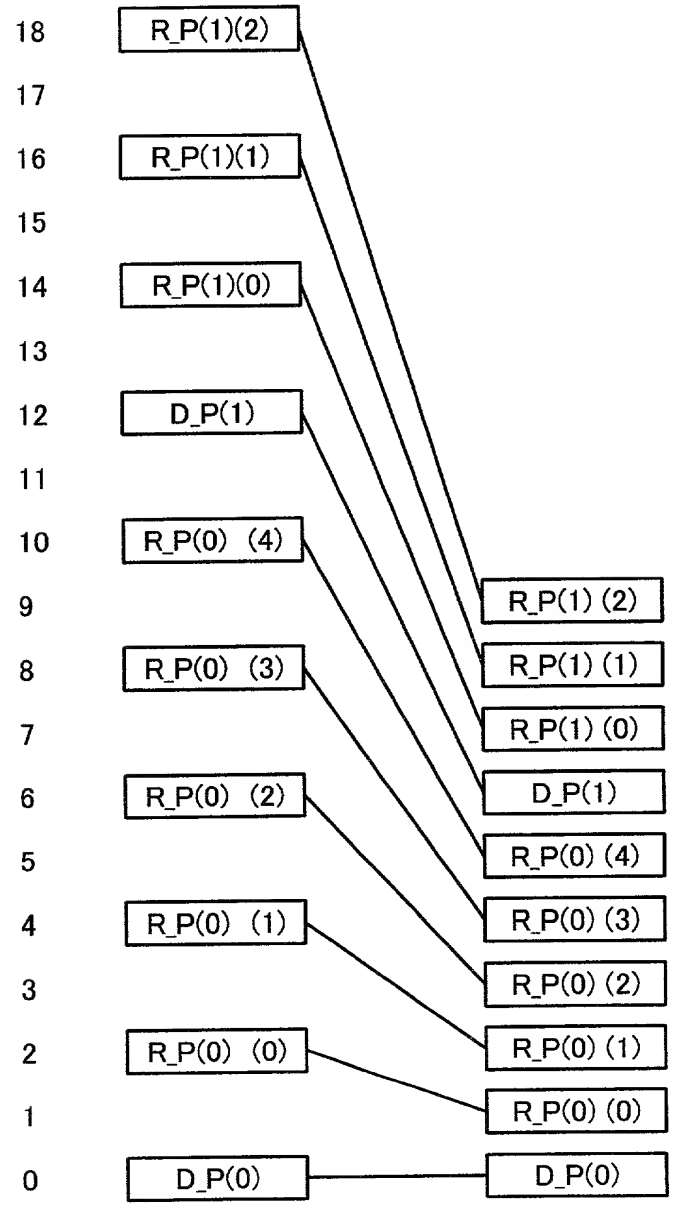

9
R_P(1)(2)
time stamp
←9
8
R_P(1)(1)
time stamp
←8
7
R_P(1)(0)
time stamp
←7
6
D_P(1)
time stamp
←6
5
R_P(0)(4)
time stamp
←5
4
R_P(0)(3)
time stamp
←4
3
R_P(0)(2)
time stamp
←3
2
R_P(0)(1)
time stamp
←2
1
R_P(0)(0)
time stamp
←1
0
D_P(0)
time stamp
←0
TIME
TIME STAMP

Fig. 18


18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
TIME
R_P(1)(2)
R_P(1)(1)
R_P(1)(0)
D_P(1)
R_P(0) (4)
R_P(0) (3)
R_P(0) (2)
R_P(0) (1)
R_P(0) (0)
D_P(0)
R_P(1) (2)
R_P(1) (1)
R_P(1) (0)
D_P(1)
R_P(0) (4)
R_P(0) (3)
R_P(0) (2)
R_P(0) (1)
R_P(0) (0)
D_P(0)